[Ex3] Bo=1, B, =0.5 xi=5 (i) /2 ~ Pai (M.) log(Mi) = Bo + Boci DMi = eBo+P, >ci = e1+0.5 x.5 33,1155 (ii) Yi~ Poi (mi) VMi = Bo + BADEN (2) Mi = (Bo+B1)2 = (1+0.5×5)2 2 12.25. (iii) Yi~ Poi (mi) log (ti) = Bo tBy Xi Ti = 10 log(Mi) = log(ti) + Bo + Bn Xn Mi = tie Po+B1×12 331,155 (iv) Mi=0i0+(1-0i) eBo+B1×1 = 0.75 × e1+0.5 × 5 = 24.8366

b) Yi ~ Pol (Mi) & (gi | mi) = e-minige = exp (yilog(mi) - elog(mi) - log(y,!) + log (mi) le(Di) = elogni) $\alpha(\emptyset) = 1$ c(yi)0)=-lag(yi!) Di = log (mi) 也一儿 2) Poi (Mi) leelog to the Exponential Family of Distribution.

C)
$$Y_{i} \sim Poi(Mi)$$
 $M_{i} = \eta_{i} = \beta_{0}$
 $Var(Y_{i}) = Mi = \beta_{0}$
 $\frac{\partial l(\beta_{1}0)}{\partial \beta_{0}} = \frac{y_{i} - Mi}{Var(Y_{i})} \propto_{i,j} \left(\frac{\partial Mi}{\partial \eta_{i}}\right) = 0$
 $\frac{\partial l(\beta_{1}0)}{\partial \beta_{0}} = \frac{y_{i} - Mi}{Var(Y_{i})} \propto_{i,j} \left(\frac{\partial Mi}{\partial \eta_{i}}\right) = 0$
 $\frac{1}{2} \frac{y_{i} - \beta_{0}}{\beta_{0}}$
 $\frac{1}{2} \frac{2y_{i} - n\beta_{0}}{\beta_{0}}$
 $\frac{1}{2} \frac{\partial l(\beta_{1}0)}{\partial \beta_{0}} = 0$
 $\frac{\partial l(\beta_{1}0)}{\partial \beta_{0}} = 0$